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REMARKS

Claims 1, 2, 4-6, 10-13 have been rejected under 35 U.S.C. §102(b) as being anticipated by Pollitt, WO 98/44033 in view of evidence of the Applicant's response dated 6/1/2004. Claims 1-9 have been rejected under 35 U.S.C. §102(b) as being anticipated by Pollitt, GB 2,322,630 in view of evidence in Applicant's response of 6/1/2004. Additionally, claims 1-9 have been rejected under 35 U.S.C. §102(b) as being anticipated by Pollitt, WO 98/44033 in view of evidence in Applicant's response of 6/1/2004.

The Examiner's rejections are respectfully traversed.

The claims have been amended to obviate the Examiner's rejections. As now amended, the Applicant's invention is directed to a settable mixture which includes silica sand. The claims limit the maximum amounts of both aluminum oxide and ferrous oxide that the silica sand may contain or the mixture will not function properly. The maximum levels of oxide are not disclosed in Pollitt'033, Pollitt'630 or Pollitt '159. The Pollitt references disclose using sand. As the references do not disclose or suggest a mixture of aluminum oxide, and ferrous oxide and maximum levels thereof, the Applicant's invention is not anticipated by Pollitt'03 3.

In the last response, the Applicant attempted to show that silica sands vary considerably in their content of aluminum oxide and ferrous oxide and indeed the silicon oxide which constitutes the majority of the chemical composition of silica sands. To do this, data sheets for sands both within and outside of the claimed maximums were included. The Examiner has appeared to focus on the one sand that is within the specified ranges but has ignored the majority of the sand samples that fall outside the claimed ranges. Specifically, with respect to the sand samples beginning with "M", the first, second and fourth falls in limit, however the

third sand falls outside the limit. However, with the Sibelco sands, all of the sands have aluminum oxide levels way above the maximum limit specified in the claim. One also has a ferrous oxide content outside the limitation.

As to the Granusil quartz sand referred to in the Office Action as not being a sand of the prior art, the Applicant does not agree. If one looks at the two columns headed 2095-2075 and 4095-7030, one will see that both silica sands have high silicon content and both have extremely high aluminum oxide contents, one being about 5.4% and the other above 7.2%. However, there is no discussion as to what kind of sand or what the sand must be comprised of.

Attached hereto is an additional set of product information sheets showing additional sands which are outside the periscope of Claim 1. Thus, this illustrates that one would not be able to simply order sand and automatically fall within the claimed invention.

As previously explained in the specification and the last Office Action, it is very important that the limits of the aluminum oxide and the ferrus oxide stay within the limits in order to solve the problem of the Applicant's originally constituted problem. Specifically the oily sheen was left on the paving elements with which the mixture was used for pointing after the product has been stored in vacuum-sealed bags for some four to five weeks. Additionally, the setting times for the mixture increased dramatically from two and a half hours to seven or eight hours. This is particularly undesirable since the compound "cures" upon exposure to the atmosphere, and it cannot be subjected to rainfall until it has cured. Thus, the longer setting time makes it more difficult to use in conditions where rain may be expected.

The Applicant has determined that the staining of the surrounding pavement may be prevented by minimizing the content of aluminum oxide and ferrous oxide in the sand mixture.

Furthermore, by minimizing these two constituents, the setting time was shortened and the overall strength of the product was improved. These two problems are unacceptable and thus the Applicant's invention overcame the problem by using sand with specified components.

If one simply ordered sand, most likely the product they would receive would not meet the requirements of the claimed invention and would have contents of aluminum oxide and ferrous oxide above the maximum ranges. Additionally, when the Applicant manufactured and sold a product following the Pollitt references, it was then that the problems with their sold product were noticed and thus they decided to find a solution to avoid the problems.

Thus, as the cited prior art references do not disclose or even suggest the need for the specific ranges of both the aluminum oxide and the ferrous oxide, the Applicant does not believe that their invention is anticipated by Pollitt, WO 98/44033, GB 2,322,630 or WO 98/21159.

Thus, as the claims are in, it is believed that the amended claims and the claims dependent there from are in proper form. The Applicant respectfully contends that Pollitt, WO 98/44033, Pollitt, GB 2,322,630 and Pollitt, WO 98/21159 do not anticipate the claimed invention under the provisions of 35 U.S.C. § 102(b). Thus, claims 1-9 and 11-13 are considered to be patently distinguishable over the prior art of record.

The application is now considered to be in condition for allowance, and an early indication of same is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Arlene J. Powers', is written over a horizontal line.

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Sales - Tel: +44 (0) 1270 752 700 Fax: +44 (0) 1270 752 701

Product Information Sheet**LEIGHTON BUZZARD DA 14 / 25****Request Quotation****Purchase Order**

Source	Leighton Buzzard
Geology	Lower Greensand
Description	Washed, Attrited, Dried and Screened Sand
Typical Colour	Brown

Chemical Analysis:

	Typical %	Limit %
SiO ₂	94.40	
Fe ₂ O ₃	4.00	
Al ₂ O ₃	0.40	
K ₂ O	0.10	
LOI	0.89	

Physical Analysis:

Microns	Typical % Retained Each Sieve	Limit %	Typical % Cumulative Retained	Limit %	Typical % Cumulative Passing	Limit %
1400	0.2		0.2		99.8	
1180	1.5		1.7	5.0 Max	98.3	95.0 Min
1000	26.8		28.5		71.5	
850	38.6		67.1		32.9	
710	30.0		97.1		2.9	
600	2.5		99.6	95.0 Min	0.4	5.0 Max
500	0.2		99.8		0.2	
-500	0.2		100.0			

Nominal Effective Size d10	Typical 0.75 mm	Range / Limit 0.65 - 0.85
Uniformity Coefficient d60 / d10	1.29 mm	< 1.40
Modal Size d50	0.93 mm	
Bulk Density kg/m3	Loose 1600 Compacted 1620	

Comments:

Typical Colour- Brown

Grain Shape- Medium sphericity / Sub rounded to sub angular

Issue Date	01/06/2003	Issue No.	1
Authorised By:	John Harold and Bobby Aitken		

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Product Information Sheet

CONGLETON HST 95

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Source **Bent Farm, Congleton, Cheshire**
 Geology **Glacial Deposit of the Pleistocene Period**
 Description **Washed Graded High Silica Sand**

Chemical Analysis:

	Typical %	Limit %
SiO ₂	94.68	93.00 Min
Fe ₂ O ₃	0.28	0.35 Max
Al ₂ O ₃	2.52	
K ₂ O	1.47	
LOI	0.34	0.55 Max

Physical Analysis:

Microns	Typical % Retained Each Sieve	Limit %	Typical % Cumulative Retained	Limit %	Typical % Cumulative Passing	Limit %
1000	0.0		0.0		100.0	
710	0.0		0.0		100.0	
500	0.0		0.0	0.4 Max	100.0	99.6 Min
355	0.2		0.2		99.8	
250	1.4		1.6		98.4	
212	2.7		4.3		95.7	
180	8.7		13.0		87.0	
150	26.3		39.3		60.7	
125	28.0		67.3		32.7	
90	30.0		97.3		2.7	
63	2.6		99.9	99.5 Min	0.1	0.5 Max
-63	0.1	0.5 Max				

AFS Number	Typical 94	Range / Limit 90 - 103
Acid Demand		
No. of mls N/10 HCL to pH3	3.4	7.0 Max
Average Grain Size	144 Microns	
Loose Bulk Density kg/m3	1420	

Comments:
 Grain Shape Rounded

Issue Date 01/06/2003 Issue No. 1
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Product Information Sheet

CONGLETON HST 80

Request Quotation

Purchase Order

Source **Bent Farm, Congleton, Cheshire**
 Geology **Glacial Deposit of the Pleistocene Period**
 Description **Washed Graded High Silica Sand**

Chemical Analysis:

	Typical %	Limit %
SiO ₂	95.17	94.00 Min
Fe ₂ O ₃	0.25	0.30 Max
Al ₂ O ₃	2.17	2.80 Max
K ₂ O	1.35	
LOI	0.31	0.50 Max

Physical Analysis:

Microns	Typical % Retained Each Sieve	Limit %	Typical % Cumulative Retained	Limit %	Typical % Cumulative Passing	Limit %
1000	0.0		0.0		100.0	
710	0.0		0.0		100.0	
500	0.0		0.0	0.3 Max	100.0	99.7 Min
355	0.2		0.2		99.8	
250	0.6		0.8	2.0 Max	99.2	98.0 Min
212	3.5		4.3		95.7	
180	23.1		27.4		72.6	
150	50.5		77.9		22.1	
125	18.6		96.5	93.5 Min	3.5	6.5 Max
90	3.4		99.9	99.0 Min	0.1	1.0 Max
63	0.1		100.0	99.7 Min	0	0.3 Max
-63	0	0.3 Max				

	Typical	Range / Limit
AFS Number	79	76 - 88
Acid Demand		
No. of mls N/10 HCL to pH3	3.0	5.0 Max
Average Grain Size	166 Microns	
Clay Content	0.2 - 0.3 Max	

Comments:

Grain Shape Well Rounded
 Loose Bulk Density kg/m3: 1520

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Product Information Sheet

MESSINGHAM MS 65

Request Quotation

Purchase Order

Source **Messingham Near Scunthorpe, South Humberside**
 Geology **Windbourne Deposit of the Recent Period**
 Description **Washed and Graded High silica sand**

Chemical Analysis:

	Typical %	Limit %
SiO ₂	95.30	94.00 Min
Fe ₂ O ₃	0.24	0.29 Max
Al ₂ O ₃	2.30	2.65 Max
K ₂ O	1.38	1.60 Max
LOI	0.37	0.50 Max

Physical Analysis:

Microns	Typical % Retained Each Sieve	Limit %	Typical % Cumulative Retained	Limit %	Typical % Cumulative Passing	Limit %
1000	Tr		-		100.0	
710	Tr		-		100.0	
500	0.1		0.1	0.5 Max	99.9	99.5 Min
355	2.8		2.9		97.1	
250	28.9		31.8		68.2	
180	39.3		71.1		28.9	
125	23.6		94.7	93.0 Min	5.3	7.0 Max
90	4.3		99.0		1.0	
63	0.9		99.9	99.7 Min	0.1	0.3 Max
-63	0.1	0.3 Max	100.0		-	
AFS	65					

Typical

Acid Demand
 No. of mls N/10 HCL to pH3 **2.8**
 Average Grain Size **223 Microns**
 Loose bulk Density kg/m3 **1480**

Comments:
 Grain shape- Sub Rounded

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[Scarica pdf](#)**QUARZI VENTILATI PER COLORIFICI E SMALTI / QUARTZ FOR FRITS AND GLAZES****QUARZI / QUARTZ****Analisi chimiche Fluorescenza RX / Chemical analysis XR Fluorescence**

	LQV1	EF 05-VG	PB/V	1/05-VF	2/08-V	V2-FF
Ossidi / Oxides	%	%	%	%	%	%
SiO ₂	93.70	90.20	97.70	98.60	95.30	95.70
Al ₂ O ₃	3.10	5.00	1.00	0.60	2.50	2.00
Fe ₂ O ₃	0.04	0.05	0.04	0.04	0.08	0.03
TiO ₂	<0.01	<0.01	<0.01	0.01	0.01	<0.01
CaO	0.10	0.20	0.10	0.06	0.05	0.15
MgO	0.05	0.02	0.01	0.01	0.01	0.01
Na ₂ O	0.20	0.20	0.10	0.05	0.15	0.10
K ₂ O	2.40	4.00	0.60	0.40	1.70	1.80
P.F.L.Q.I. (1100°C)	0.30	0.30	0.10	0.10	0.15	0.10

Analisi mineralogiche Diffrazione RX / Mineralogical analysis XR Diffraction

	LQV1	EF 05-VG	PB/V	1/05-VF	2/08-V	V2-FF
Fasi minerali Minerals	%	%	%	%	%	%

Quarzo /

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**TEKNOQUARZ**

Analisi Chimica / Chemical Analysis

QUARZI VENTILATI			
VR 16	VR 4	W10	VR 2
VR 2 S			

P.a.F. (1050 C°) / L.o.I. (1050 C°)	0,25	0,25	0,25	0,25	0,4
SiO ₂	96,3	96,3	96,3	96,3	98
Al ₂ O ₃	2,4	2,4	2,4	2,4	1
Fe ₂ O ₃	0,12	0,12	0,12	0,12	0,1
TiO ₂	0,06	0,06	0,06	0,06	0,03
Na ₂ O	-	-	-	-	-
K ₂ O	0,9	0,9	0,9	0,9	0,25
CaO	0,06	0,06	0,06	0,06	0,05
MgO	-	-	-	-	0,1

Proprietà Fisiche / Physical Properties

Umidità (105° C) / Moisture (105° C)	0,3% max	0,3% max	0,3% max	0,3% max	0,3% max
Durezza Mohs / Mohs hardness	7	7	7	7	7
Peso Specifico (g/cm ³) / Bulk density (g/cm ³)					
reale / absolute	2,6	2,6	2,6	2,6	2,6
apparente / apparent	1,1	1,2	1,25	1,3	1,3

Analisi Granulometrica / Particle Size

Granulometria Nominale / Nominal Size	0-45 mic.	0-71 mic.	0-100 mic.	0-160 mic.	0-160 mic.
Caratteristiche / Characteristics	>45 mic. 1,5% miller. % tr.	>71 mic. 1,8% miller. % tr.	>100 mic. 2% miller. % tr.	>160 mic. 2% miller. % tr.	>160 mic. 2% miller. % tr.
Curva Indicativa / Typical Size (setacciatura a secco) / (dry sieved) UNI 2331/2332	46	71	100	160	160
	1,5	1,8	2	2	2
		46	71	71	71
		12,4	10,2	18,2	18,2
			45	45	45

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Anallal Chlmica / Chemical Analyate

MICRO S A B B I E			
P 16	P 10	0 88	40 88

P.A.F. (1050 C°) / L.o.I. (1050 C°)	0,5	0,5	0,35	0,35
SiO ₂	91,8	91,8	94,75	94,75
Al ₂ O ₃	5	5	3	3
Fe ₂ O ₃	0,28	0,28	0,13	0,13
TiO ₂	0,1	0,1	0,07	0,07
Na ₂ O	-	-	-	-
K ₂ O	2	2	1,55	1,55
CaO	0,08	0,08	0,02	0,02
MgO	0,2	0,2	0,11	0,11

Proprietà Fisiche / Physical Properties

Umidità (105° C) / Moisture (105° C)	0,3% max	0,3 max	0,3% max	0,3 max
Durezza Mohs / Mohs hardness	7	7	7	7
Peso Specifico (g/cm ³) / Bulk density (g/cm ³)				
reale / absolute	2,6	2,6	2,6	2,6
apparente / apparent	1,5	1,5	1,6	1,6

Anallal Granulometrica / Particle Size

Granulometria Nominale / Nominal Size	0-75 mic.	0-150 mic.	0-200 mic.	0-350 mic.
Caratteristiche / Characteristics	>100 mic. 2%	>200 mic. 1%	>200 mic. 1%	>400 mic. 2%
	micr.	% tr.	micr.	% tr.
	100	0,5	200	0,5
	75	5	150	3
			75	10
				60
			75	75
				100
				75
				95

Curva Indicativa / Typical Size
(setacciatura a secco) / (dry sieved)
UNI 2331/2332

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Analisi Chimica / Chemical Analysis

SABBIE SELEZIONATE				
S 2	40 SF	40 1	40 CN	40 RV

P.a.F. (1050 C°) / L.o.I. (1050 C°)	0,3	0,3	0,3	0,3	0,3
SiO ₂	95,8	95,8	95,8	95,8	95,8
Al ₂ O ₃	2,5	2,5	2,5	2,5	2,5
Fe ₂ O ₃	0,1	0,1	0,12	0,1	0,1
TiO ₂	0,05	0,05	0,05	0,05	0,05
Na ₂ O	-	-	-	-	-
K ₂ O	1,1	1,1	1,1	1,1	1,1
CaO	0,03	0,03	0,03	0,03	0,03
MgO	0,1	0,1	0,1	0,1	0,1

Proprietà Fisiche / Physical Properties

Umidità (105° C) / Moisture (105° C)	0,3% max	0,3% max	0,3% max	0,3% max	0,3% max
Durezza Mohr / Mohr hardness	7	7	7	7	7
Peso Specifico (g/cm ³) / Bulk density (g/cm ³)					
reale / absolute	2,6	2,6	2,6	2,6	2,6
apparente / apparent	1,5	1,5	1,5	1,5	1,5

Analisi Granulometrica / Particle Size

Granulometria Nominale / Nominal Size	D-850 mic.	250-800 mic.	400-800 mic.	250-600 mic.	150-450 mic.	100-400 mic.
Caratteristiche / Characteristics	>850 mic. 1% mlier. % tr.	>800 mic. 1% mlier. % tr.	>1000 mic. 0,5 mlier. % tr.	>600 mic. 1% mlier. % tr.	>500 mic. 1% mlier. % tr.	>425 mic. 1% mlier. % tr.
Curva Indicativa / Typical Size (setacciatura a secco) / (dry sieved) UNI 2331/2332	800	710	600	500	400	300
	400	350	300	250	200	150
	200	150	100	75	50	35
	100	75	50	35	25	15

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Physical Properties

TYPICAL VALUES – Data shown is accurate and reliable, but not a specification.

Property	Test Method	Unit	Typical Values
Mineral	Petrographic	—	Quartz
Shape/Hardness	Visual	Moh	Rounded/7.0
Moisture Content	ASTM C-566	%	<0.1
Specific Gravity	ASTM C-128	—	2.65
Bulk Density, aerated	ASTM C- 29	Lbs/Ft ³	92-95
compacted	ASTM C- 29	Lbs/Ft ³	98-100

Chemical Analysis

TYPICAL VALUES – Data shown is accurate and reliable, but not a specification.

Mean Percent by Weight		2095-2075	4095-7030
Silicon Dioxide	(SiO ₂)	90.484	87.263
Iron Oxide	(Fe ₂ O ₃)	0.095	0.113
Aluminum Oxide	(Al ₂ O ₃)	5.451	7.244
Calcium Oxide	(CaO)	0.358	0.609
Titanium Dioxide	(TiO ₂)	0.016	0.018
Magnesium Oxide	(MgO)	0.021	0.024
Potassium Oxide	(K ₂ O)	2.536	2.819
Sodium Oxide	(Na ₂ O)	0.714	1.672
Loss on Ignition	(L.O.I.)	0.325	0.238

Ordering Information

Shipping Point: Edmonton Distribution Centre

Packaging: *Granusil* is available in 100 lb. multiwall paper bags.

Edmonton Distribution Centre
305 - 116 Ave. N.W., Edmonton AB T6S 1G5
Order Desk: (403) 467-2627
Fax: 467-2752
Toll Free: 1-800-661-6982

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